THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte SOMASUNDARAM SUBRAMANIAN, ROBERT J. KUDLA
and MOHINDER S. CHATTHA

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Appeal No. 94-3479
Application 07/917,261[1]

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ON BRIEF

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Before SOFOCLEOUS, CAROFF and WEIFFENBACH, Administrative Patent Judges.

SOFOCLEOUS, Administrative Patent Judge.

[1] Application for patent filed July 23, 1992. According to appellants, this application is a division of Application 07/772,410, filed October 7, 1991, now U.S. Patent No. 5,208,205, issued May 4, 1993.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 15 to 22, all the claims remaining in the application.

The subject matter on appeal is directed to a method of treating emissions from a fossil-fueled engine using lean-burn combustion, the emissions having an oxygen content of 1.5 to 10.0%. The method comprises three steps: (a) injecting a saturated hydrocarbon reductant into the emissions entering a two-stage catalyst, (b) exposing the injected emissions to a first stage catalyst having highly acidic gamma alumina, and (c) exposing the effluent from the first stage to a downstream oxidation catalyst acting as the second stage.

In their brief, appellants do not separately argue any of their claims and thus claims 15 to 22 stand or fall together with independent claim 15 which reads as follows:

15. A method of treating the emission from a fossil-fueled engine, using lean-burn combustion, the emission having an exygen content of 1.5-10%, the method comprising:

(a) injecting a hydrocarbon reductant selected from the group consisting of straight chain, branched chain, or aromatic hydrocarbons or oxygenated compounds, said hydrocarbon reductant being injected into the catalyst stream entering a first stage nitric oxide reduction catalyst comprised of highly acidic gamma alumina;

(b) exposing the injected stream to the nitric oxide reduction catalyst and

(c) exposing the effluent from the reducing catalyst to an oxidation catalyst.

The references relied upon by the Examiner are:

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| Davis | 4,087,384 | May 2, 1978 |
| Torii et al. (Torii) | 4,111,848 | Sept. 5, 1978 |

Claims 15 to 22 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kintaichi in view of Davis or Torii.

We cannot sustain this rejection.

The examiner's rejection is premised on an improper interpretation of the claim language, "highly acidic gamma alumina;" the examiner has essentially interpretted the language as meaning alumina. However, it is axiomatic that, in proceedings before the PTO, claims in an application are to be given their broadest reasonable interpretation consistent with the specification. In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983).

We agree with appellants that the term, "highly acidic gamma alumina," must be interpreted as defined in their specification on page 5, line 25 to page 6, line 15, to mean a gamma alumina having a $pH_{pzc}$ of less than 3.0. In their specification, appellants state that commercially available alumina comes in three forms: mildly acidic (5-8 $pH_{pzc}$), basic,

and neutral. To obtain highly acidic alumina, appellants must acidify commercially alumina with an acid. Thus in reading the claim, we must interpret appellants' alumina as having a $pH_{pzc}$ less than 3.0.

Bearing in mind the proper construction of appellants' claims, we have reviewed the references. Missing from the references is any teaching or suggestion that alumina catalyst must be highly acidic. Notwithstanding this, the Examiner urges on page 7 of his Answer that the acidity of the alumina recited in appellants' claim 15 does not distinguish from the acidity of Kintaichi's catalyst comprising silica and alumina. A fair reading of Kintaichi shows that Kintaichi recognizes that as he increases the alumina content of his catalyst, its acidity increases, silica not being acidic. This increase in acidity is attributed to the presence of alumina. Although Kintaichi recognizes that the acidity of the catalyst is one of the main factors that determines catalytic activity, Kintaichi does not contemplate the use of alumina other than that commercially available. In other words, Kintaichi does not teach the use of a highly acidic alumina having a $pH_{pzc}$ of less than 3.0.

The decision of the Examiner is reversed.

REVERSED

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| MICHAEL SOFOCLEOUS<br>Administrative Patent Judge | ) | |
| MARC L. CAROFF<br>Administrative Patent Judge | ) | BOARD OF PATENT APPEALS AND INTERFERENCES |
| CAMERON WEIFFENBACH<br>Administrative Patent Judge | ) | |

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